

EXPERTISE IN RFID BREEDS EXCELLENCE AT BOTH THE COMPONENT AND SYSTEM LEVEL, and is vital to obtaining peak performance for any application. At Impinj, we define accurate, reliable, and adaptable solutions as systems of integrity.

A system of integrity produces the consistently reliable data required as the foundation of any business system. To meet this requirement with RFID, high-performance tag chips and readers are a given, but antennas play an equally important role. Reader antennas with characteristics optimized for end-user applications enable the entire RFID system and play a crucial role in ensuring that the system operates dependably and accurately.

We have helped customers (in pharmaceutical fill lines, retail and apparel applications, consumer order fulfillment, race timing, and more) find ways to overcome the difficult problems that inhibit RFID deployments. As part of those solutions, Impinj created specialized reader antennas with performance optimized to item-level operations.

Our reader antennas are just one more example of how Impinj continually moves the industry forward by breaking down barriers—enabling RFID systems that increase efficiency, achieve greater accuracy, and improve the consumer experience.

UHF GEN 2 RFID

Impinj Reader Antenna Products



Antennas for Real-World Applications

Impinj's reader antennas evolved as innovative solutions to real world problems. The experience gained in solving customer challenges gave Impinj engineers invaluable insight that has resulted in a family of antennas with characteristics ideally suited for item-level operation.

Reader Antenna Features

- ▶ Tightly controlled read zones minimize reading of stray tags
- ▶ Application-optimized read range—short range (near field), long range (far field), or a mix
- ▶ Application-optimized beam width (angle within which most intense energy emanates)
- ▶ Designed for RoHS compliance

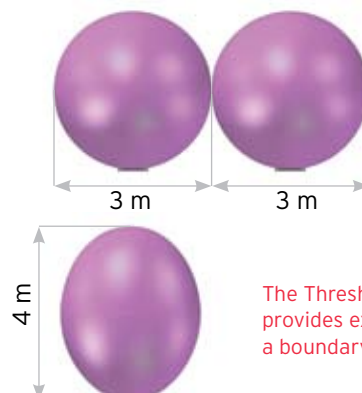
Only Impinj's brand of UHF Gen 2 reader antennas allows a user to choose the optimal antenna based on the performance requirements for the application at hand.



Deftly fitting into a narrow urethane road ramp, multiple Threshold antennas provide continuous coverage across a road race course.

Threshold Antenna

Initially designed for boundary/threshold crossing applications, the Impinj Threshold antenna has a very wide beam width to maximize zone coverage. Threshold antennas provide a consistent and continuous read zone when linearly distributed head-to-tail. At 46 x 9 x 2 cm, the Threshold antenna's planar form factor fits readily into a urethane ramp or onto fencing. Two models support the UHF frequency ranges particular to Europe (865-868 MHz) and North America (902-928 MHz).



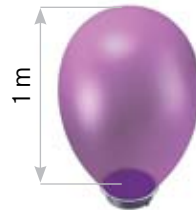
By lining Threshold antennas up along the short edge, one continuous read zone may be established along a line boundary.

The Threshold antenna's wide beam provides extensive zone coverage across a boundary edge.

Brickyard Antenna

The versatile Brickyard antenna with its confined, short-range read zone has application in point-of-sale terminals, apparel markets, document control, and library systems, just to name a few. With a 29.5 cm diameter, 6 cm deep form factor, and an integrated 2 meter cable, the Brickyard antenna mounts conveniently in either top or bottom configurations. Two separate models support the UHF frequency ranges for Europe (865-868 MHz) and North America (902-928 MHz).

While the Brickyard antenna read zone radiates upward in an elongated sphere to 1m, it features an intense magnetic field (not shown) that maximizes read capability within the first 30-45 cm of its surface.



RFID-enabled checkout via the Brickyard antenna improves efficiency and enhances customer interaction.



Impinj's Guardwall antenna design provides tight read zone control for any item-level packed goods application.



Guardwall Antenna

For item-level reading of packed goods, the Guardwall antenna provides a tightly controlled read zone and intense RF field, critical to penetrating deep into packed cases. When used as a pair, the Guardwall antenna absorbs energy from its opposing mate so that very little passes beyond the exterior face. This configuration maximizes stray read rejection by constraining the read zone to the area within the two antennas. It also increases read reliability by maximizing the intensity within the read zone. The Guardwall measures 70 x 40 x 10 cm and smoothly integrates into conveyor systems. Two separate models support the UHF frequency ranges for Europe (865-868 MHz) and North America (902-928 MHz).

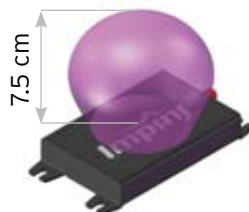


A pair of Guardwall antennas used together creates an intense, well-contained read zone, with little spillover beyond exterior faces.

Mini-Guardrail Antenna

The Mini-Guardrail antenna's very short read range makes it well-suited for a wide variety of item-level applications. With its four flange-located mounting holes, it fits easily into the guardrail of a line conveyor system, works in a labeling machine, or any other application requiring short range performance in a small form factor. The Mini-Guardrail antenna provides broadband support for the UHF frequency band of 860-960 MHz and measures only 13 x 7 x 2 cm.

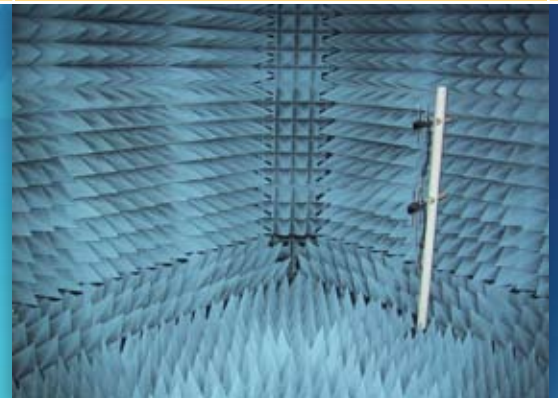
The Mini-Guardrail antenna's short-range (7.5 centimeters) read zone features an intense magnetic field (not shown) that makes it the ideal choice for a wide array of item-level applications.



The Mini-Guardrail antenna mounts unobtrusively into a pharmaceutical fill line in place of a side guardrail.

Antenna	Dimensions	Broadband (860-960 MHz)	Europe (865-868 MHz)	USA (902-928 MHz)
Brickyard	29.5 cm D x 6 cm		✓	✓
Guardwall	70 x 40 x 10 cm		✓	✓
Mini-Guardrail	13 x 7 x 2 cm	✓		
Threshold	46 x 9 x 2 cm		✓	✓

Inside Impinj's state-of-the-art antenna design lab, engineers conduct in-depth antenna characterization and benchmarking studies, including the evaluation of range, near- and far-field characteristics, interference effects, and loading conditions across the UHF spectrum and under a variety of use conditions to verify consistent antenna performance. Prior to releasing an antenna to production, the design is qualification tested to ensure that it works to target specifications.



Impinj's state-of-the-art antenna lab includes a custom anechoic chamber—a shielded enclosure lined with radio-absorbing material that provides a controlled environment for antenna testing and evaluation.



Powered by Impinj

There is RFID, and then there is Impinj RFID. Impinj assures the integrity of the RFID system—our products perform accurately and reliably, with built-in capability to adapt to changing and challenging environments.

Impinj has earned a reputation for having the best technology in the industry, created by innovators who have consistently anticipated, met, and overcome challenges

deemed by others as too difficult, while setting new industry standards for quality and reliability.

When it comes to installing RFID into your application, ask for it to be *Powered by Impinj*.

